

Assessing fees for electric vehicles under SB1

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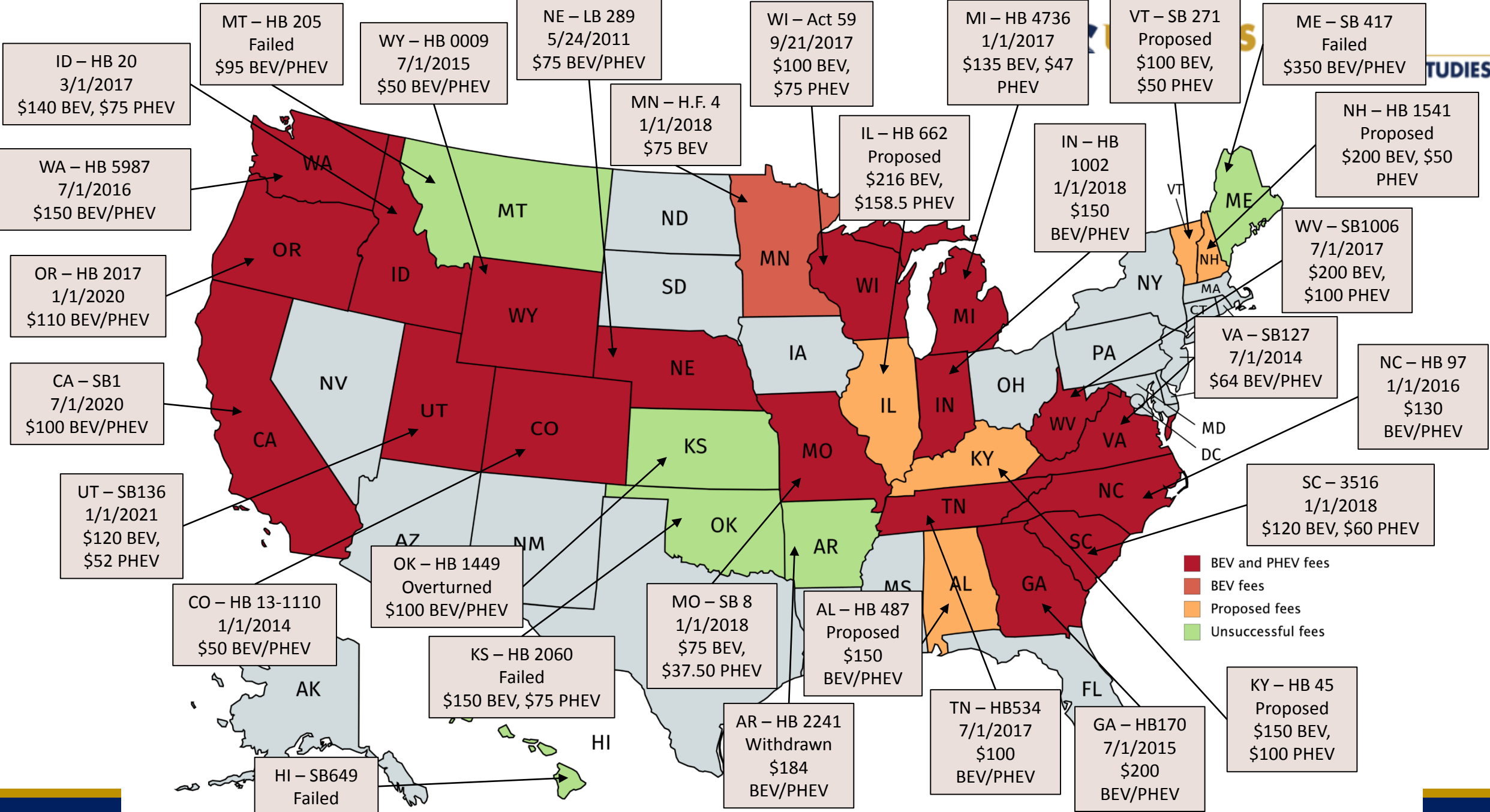
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Background

On April 28, 2017 the California legislature and governor passed SB1:

- \$0.12 per gallon increase in the motor vehicle fuel (gasoline) tax (Nov 1, 2017)
- \$0.20 per gallon increase in the motor vehicle fuel (diesel) tax (Nov 1, 2017)
- Ties fuel taxes to inflation, removes the gas tax swap variable excise tax
- \$25-\$175 annual transportation improvement fee (Jan 1, 2018)
- \$100 annual registration fee for zero-emission motor vehicles (Jul 1, 2020)

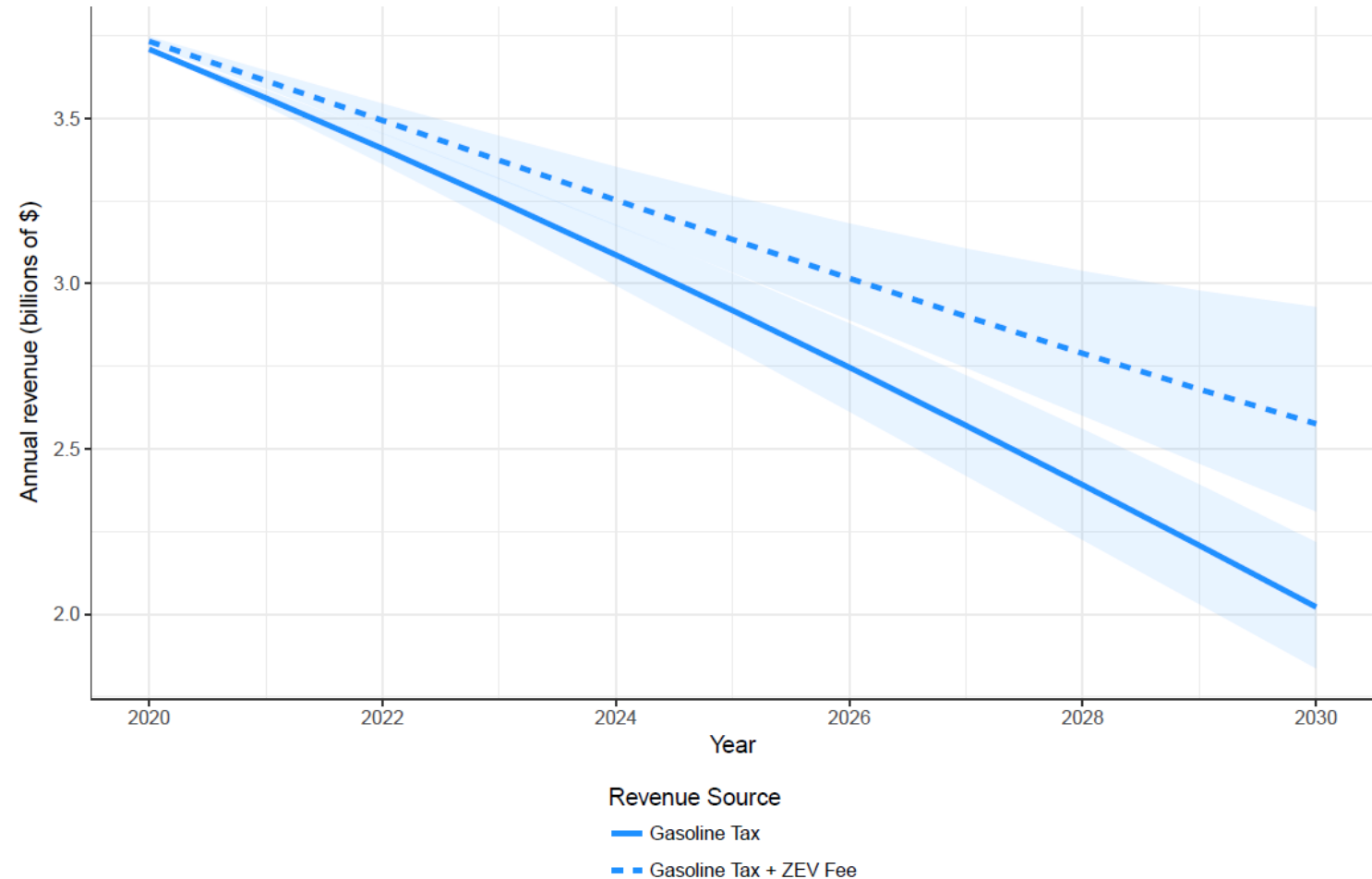


Future forecasts of revenue from gas tax and ZEV fee

Revenue decreases over time as fuel economy of new vehicles increases

ZEV fee recovers part of the decrease in revenue but most of the deficit is from fuel economy improvements

Registration fee in the long-term is unsustainable



How does the registration fee affect ZEV sales?

Potential conflict between state goals of ZEV adoption and ensuring ZEVs pay their fair share

Two approaches taken to measure the impact on sales: stated preference via survey and revealed preference leveraging sales data

- Survey: for BEV owners, 11% decrease in adoption; for PHEV owners, 19% decrease in adoption
- Regression: 0.24% decrease per dollar of registration fee on average, variation from state to state

Does the EV registration fee make sense?

1. The registration fee is unsustainable, a long-term shift towards ZEV will leave infrastructure funding drastically underfunded in comparison to the gasoline tax as it exists today.
2. The fee penalizes plug-in hybrid electric vehicles, which must pay both the registration fee and the current gasoline tax (for any gasoline fueled operation).
3. PEV owners would pay more under the registration fee compared to what they would equivalently pay with a gasoline tax.
4. A flat fee is disconnected from usage and the “user pays” principle, a PEV owner would pay the same amount regardless of the miles driven—directly in contrast with a gasoline tax which is based on usage.

Alternative fee mechanisms

Electricity and hydrogen specific fee – equivalent to the gasoline tax with a fuel consumption fee enacted on electricity (\$/kWh) and hydrogen (\$/kg)

Road charge mileage fee – charges a flat fee for each mile traveled

Road charge: fee structure

Charge a flat rate on each mile traveled (from \$/gal to \$/mi)

How much to charge?

- Based on average travel intensity in CA: \$0.018/mi
- The average driver pays the exact same, more efficient vehicles will pay relatively more and less fuel efficient vehicles will pay relatively less (less regressive than a gasoline tax)

Compelling recruitment method through opt-in instead of annual registration fee

Road charges on PEV platform

Road charge only for electric miles (e-miles), though blended miles maybe more difficult to account for

Open Vehicle Grid Integration Program (OVGIP) – a collaborative program between:

- Electric Power Research Institute (EPRI)
- Utilities (SCE, PG&E, SDG&E, Southern Co., Hawaiian Electric, Consolidated Edison)
- OEMs (BMW, Ford, GM, Honda, Mercedes Benz, Toyota)

The SB1 constraints of operationalizing pricing exclusively for PEVs offers several benefits:

- No need to get rid of gasoline tax
- Addresses fuel transition issue
- Gradual rollout is easier to implement since PEVs are lower volume
- Lower administrative costs: no need for refund checks